



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/009,337

11/02/2001

Andre Peremans

9997.38USWO

3864

7590

08/26/2004

John J Gresens
Merchant & Gould
P O Box 2903
Minneapolis, MN 55402-0903

EXAMINER

NGUYEN, PHILLIP

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/009,337

Applicant(s)

PEREMANS ET AL.

Examiner

Phillip Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/2/2001.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Specification

1. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (f) BRIEF SUMMARY OF THE INVENTION.
- (g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (h) DETAILED DESCRIPTION OF THE INVENTION.
- (i) CLAIM OR CLAIMS (commencing on a separate sheet).
- (j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites in lines 16-17 “said device further comprising arranged in the resonant cavity (20) a solid intensity limiter (4)” which is grammatically incorrect and suggested to be rewritten such as -- said device further comprising a solid intensity limiter (4), arranged in the resonant cavity (20),-- .

Claims 2-3 and 5 recite “the non-linear optical means (10) comprises said second mirror (8) which **corresponds** to a dichroic mirror” and “said second mirror corresponds to a Fabry Perot anti-resonant saturable absorber”, respectively, which are not clear what applicant intends to claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barrett et al. ('274) in view of Rhoads et al. ('594).

With respect to claim 1, Barrett discloses in Figure 4 a device comprising a resonant cavity, delimited by a first mirror (4) and a second mirror (3), provided with an active laser gain medium (1) for amplifying a laser radiation beam at the fundamental frequency, and with a solid non-linear optical means which comprises at least said second mirror (3), for reversible conversion of the radiation at the fundamental frequency into radiation at a harmonic frequency (second harmonic frequency), said non-linear optical means having a reflection coefficient which increases as the intensity of the radiation at the fundamental frequency increases, said device further comprising arranged in the resonant cavity a solid intensity limiter (9) whose transmission coefficient of the laser radiation decreases as the intensity of said radiation increases except for said intensity limiter (9) comprising a GaAs, CdSe or InP plate. It is noted that the Q switch (9) is considered a limiter since it includes electro-optical (Pockels cell), acousto-optical, and the like whereas discussed in specification (page 7, lines 18-30). Rhoads discloses a Q switch constructed from GaAs (col. 9, lines 66-67). For the improvement of the device, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide a limiter or Q-switch made of GaAs as taught by Rhoads to Barrett.

With respect to claims 2-3 and 5, Barrett also teaches using a dichroic mirror and a non-linear crystal (5) to convert the radiation at the fundamental frequency into a harmonic frequency (col. 2, lines 35-45).

Art Unit: 2828

With respect to claim 4, Barrett discloses the non-linear crystal being BBO (Table 1).

With respect to claim 6, Barrett discloses in Figure 4 the limiter (9) **and** the non-linear optical means (3, 5) are placed on a right side of the active medium (1).

With respect to claim 7, Barrett discloses the limiter (9) is placed between the non-linear optical means (3, 5).

With respect to claim 8, using Nd:YAG crystal for active medium in the modelock laser cavity only involves routine skill in the art.

With respect to claim 9, Barrett discloses the claimed invention in col. 6, lines 20-26.

With respect to claim 10, Barrett and Rhoads disclose the claimed invention as shown in the rejection of claim 1. Barrett teaches the limiter (9) combined with non-linear optical means (3, 5). It is understood that with the same combination, the result would be inherently the same.

Claim 11 further recites a method for mode-locking a laser. Since Barrett and Rhoads disclose the product, it is inherent product by process for performing a method as recited in the claim.

Citation of Pertinent References

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Barrett et al. discloses High Power Laser Employing Fiber Optic Delivery Means, U.S. Patent No. 5257274

The patent to Rhoads et al. discloses Controllable Optical Periodic Surface Filters, U.S. Patent No. 5661594

Art Unit: 2828

Communication Information

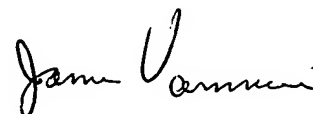
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUM HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pn

AU 2828



**JAMES VANNUCCI
PRIMARY EXAMINER**